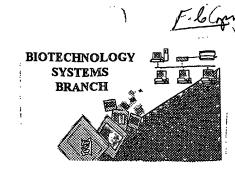
Raw Sequence Listing Error Summary

ERROR DETECTED	SUGGESTED CORRECTION SERIAL NUMBER: 09/689,343A
attn: new rules case	s: Please disregard english "Alpha" Headers, which were inserted by PTO so
1Wrapped Nucleics Wrapped Aminos	The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
2Invalid Line Length	The rules require that a line not exceed 72 characters in length. This includes white spaces.
3Misaligned Amino Numbering	The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
4Non-ASCII	The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
5Variable Length	Sequence(s) contain n's or Xan's representing more than one residue. Per Sequence Rules, each n or Xan can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
6Patentin 2.0 "bug"	A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s). Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
7Skipped Sequences (OLD RULES)	Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence: (2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown) (i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading) (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown) This sequence is intentionally skipped
	Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
8 Skipped Sequences (NEW RULES)	Sequence(s) missing. If Intentional, please insert the following lines for each skipped sequence. <210> sequence id number <400> sequence id number 000
9Use of n's or Xan's (NEW RULES)	Use of n's and/or Xaa's have been detected in the Sequence Listing. Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present. In <220> to <223> section, please explain location of m or Xaa, and which residue n or Xaa represents.
10Invalid <213> Response	Per 1.823 of Sequence Rules, the only valld <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220><223> section is required when <213> response is Unknown or is Artificial Sequence
1Use of <220>	Sequence(s) missing the <220> "Feature" and associated numeric identifiers and responses. Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section. (See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
PatentIn 2.0 "bug"	Please do not use "Copy to Disk" function of Patentin version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.
3Misuse of n	n can only be used to represent a single nucleotide in a nucleic acid sequence. N is not used to represent any value not specifically a nucleotide.

AMC/MH - Biotechnology Systems Branch - 08/21/200



RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/689,343A

Source: /600

Date Processed by STIC: 4/16/2002

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216. PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax) PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.1 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

http://www.uspto.gov/web/offices/pac/checker

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail. Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

- 1. EFS-Bio (http://www.uspto.gov/ebc/efs/downloads/documents.htm, EFS Submission User Manual ePAVE)
- 2. U.S. Postal Service: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202
- Hand Carry directly to:
 U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7th Floor, Examiner Name, Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202
 - U.S. Patent and Trademark Office, Box Sequence, Customer Window, Lobby, Room 1B03, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202
- 4. Federal Express, United Parcel Service, or other delivery service to: U.S. Patent and Trademark Office, Box Sequence, Room 1B03-Mailroom, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202

Revised 01/29/2002



1636

RAW SEQUENCE LISTING

DATE: 04/16/2002

PATENT APPLICATION: US/09/689,343A

BA TIME: 11:52:53

Input Set : A:\NEB-181.txt

Output Set: N:\CRF3\04162002\1689343A.raw

se M

```
Does Not Comply
 3 <110> APPLICANT: VAISVILA, ROMUALDAS
                                                           Corrected Diskette Needec
         MORGAN, RICHARD D.
 5
         KUCERA, REBECÇA B.
         CLAUS, TOBY E.
 6
         RALEIGH, ELISABETH A.
 9 <120> TITLE OF INVENTION: METHOD FOR CLONING AND PRODUCING THE MseI RESTRICTION
10
         ENDONUCLEASE
12 <130> FILE REFERENCE: NEB-181
14 <140> CURRENT APPLICATION NUMBER: 09/689,343A
15 <141> CURRENT FILING DATE: 2000-10-12
17 <160> NUMBER OF SEQ ID NOS: 9
19 <170> SOFTWARE: PatentIn Ver. 2.0
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 903
23 <212> TYPE: DNA
24 <213> ORGANISM: Micrococcus sp.
26 <220> FEATURE:
27 <221> NAME/KEY: CDS
28 <222> LOCATION: (1)..(900)
30 <400> SEQUENCE: 1
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32 Met Pro Ile Ser Thr Val Trp Thr Pro Asp Gly Asp Asp Leu Ile Val
33
35 gag gcg gac aac ctc gat ttc att caa acg ctc ccc gac gcg agc ttc
                                                                      96
36 Glu Ala Asp Asn Leu Asp Phe Ile Gln Thr Leu Pro Asp Ala Ser Phe
                                    25
39 cga atg atc tac atc gat ccg ccg ttc aac aca ggg cga acg cag cgg
40 Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg
41
            35
                                40
43 ctt cag tcg ctc aag acg acc cgc tcg gtc aca ggg tcg cga gtc ggc
                                                                      192
44 Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly
47 ttc aaa ggc cag acg tac gac acg gtc aag agc act ctg cac tcg tat
48 Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr
51 gac gac gct ttc acc gac tat tgg tcg ttc ctc gaa ccg cgt ctc ctg
                                                                      288
52 Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu
                    85
                                         90
55 gag get tgg egg ttg ete ace eet gae gge geg ete tat ett eat etg
56 Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu
               100
                                   105
59 gat tac cgc gag gtt cac tac gcc aag gtc gtc ctc gac gcg atg ttc
60 Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe
```

Input Set : A:\NEB-181.txt

61	115			120					125				
		•	ctg aac		cta.	atc	taa	aca		ma.c	tac	aac	432
			Leu Asn										102
-	130	oci inc	135	OIU.	Deu		115	140	-11-	nsp	- Y -	GLY	
		aad add	aag tgg	ccc :	acc .	аап	cac		aac	ato	ctc	ata	480
			Lys Trp			_		_					400
69 145	Aly Sel	пуз зет	150	FIO.	1111	цуз	155	vah	ASII	116	пец	160	
	ata 22a	a20 000	aac aac	+20	ata :	+~~		aa+	020	~a+	a+ 2		528
			Asn Asn										320
72 1yr 73	val Lys	165		TYL		170	MSII	GTĀ	GIII	ASP	175	ASP	
	~~~ ~~~		.gcg ccc	aaa .			202	000	~~~	224		aca	576
			Ala Pro										370
70 AIG	GIU PIO	191 Mec	Ala Plo	_	185	Val	1111	PIO	GIU	190	Val	AIG	
	~~~ >>~		acc gac			+ ~~	020	202	a+a		000	aat	624
			Thr Asp										024
81	195 195		IIII ASP	200	тъ	тъ	птэ	1111	205	Val	PIO	PIO	
-			200 000		~~~	202	020	224		a+ a	~~~	2+0	672
			acc ggg										0/2
	_	GIU AIG	Thr Gly 215	Tyr	Ald	THE	GIII	<u>гуз</u> 220	PIO	vai	СТУ	TIE	
	210						~~~	-	~~~				720
	-	_	cag gcg	_	_		_		_		-	_	720
	arg arg	met lie	Gln Ala	ser	ser	ASII		GIY	ASP	ттр	vaı		
89 225			230				235					240	760
			agt ggg										768
-	Pne Pne	_	Ser Gly	THE		_	Ата	Ата	Ата	Arg		ьeu	
93		245				250				-+-	255		016
			ctc gta										816
_	arg arg		Leu Val	_		ASI	Pro	GIU	Ата		Ala	val	
97		260			265					270			064
			gat gac										864
			u Asp As		Ala	ьeu	ASP	THE			LTI	rile	
101	27	_		280					285				002
			g agt ga							L			903
		r pro G1	n Ser As	_	Arg	THE	ASP	_					
105	290	TD NO. 3	29	5				300	i				
		ID NO: 2											
109 <21													
110 <21													
			crococcu	s sp.									
113 <40	-		- 17-1 m-	- mb	Dwa	3 ~~						. 17.1	
		e ser in	r Val Tr	b Titt	PIO			ASL	ASL	, пес			
115 1		m Ban To	5 	. Tl.	<i>0</i> 15	10		Dwo		1 -	15		
	Ala AS	_	u Asp Ph	e ire			. ren	PIC	ASL			r Phe	
118	. ¥± . ±1	20		- D=-	25		mh so	<u> </u>		3(. mb.			
_	_	_	e Asp Pr			ASI	THE	GTA			GII	1 Arg	
121		5 	o mb m1-	40		17-7	mЪ		45		. 37-	1 (1	
		r reg ra	s Thr Th	_	ser	val	. Tnr			Arc	y va.	г стА	
124	50	al- m-	5 3 c	-	17- ¹	т		60 mb~				m M	
	_	у сти ти	r Tyr As	p rnr	val	гла			ьeu	HIS	s sei		
127 65			70				75					80	

Input Set : A:\NEB-181.txt

```
129 Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu
                     85
132 Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu
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                                    105
135 Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe
           115
                                120
                                                    125
138 Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly
                            135
141 Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val
                    . 150
144 Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp
145
                    165
                                        170
147 Arg Glu Pro Tyr Met Ala Pro Gly Leu Val Thr Pro Glu Lys Val Ala
                180
                                    185
150 Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro
                                200
           195
153 Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile
                            215
156 Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu
                        230
                                            235
159 Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu
                    245
                                        250
162 Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val
                                    265
165 Met Ala Lys Arg Leu Asp Asp Gly Ala Leu Asp Thr Ser Val Thr Ile
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                                280
168 Val Gln Thr Pro Gln Ser Asp Pro Arg Thr Asp Gly
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                            295
172 <210> SEQ ID NO: 3
173 <211> LENGTH: 1236
174 <212> TYPE: DNA
175 <213> ORGANISM: Unknown
177 <220> FEATURE:
178 <223> OTHER INFORMATION: Description of Unknown Organism: ENVIRONMENTAL DNA
180 <220> FEATURE:
181 <221> NAME/KEY: CDS
182 <222> LOCATION: (1)..(1233)
184 <220> FEATURE:
185 <223> OTHER INFORMATION: At position 594, N = G, A, C or T
187 <400> SEQUENCE: 3
188 atg cct aca ctg gat tgg ccc ggt aaa cag tta agc ttc cca cca gct
                                                                       48
189 Met Pro Thr Leu Asp Trp Pro Gly Lys Gln Leu Ser Phe Pro Pro Ala
                                         10
192 acc tcc ttg cat ctg gag agt gtg gtc act gag gga gcg gag tca ccg
                                                                       96
193 Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro
                20
                                     25
196 cct aat cgt ctg att tgg gcg gac aac ctg ccg cta atg gta gat ttg
                                                                       144
197 Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu
198
             35
```



Input Set : A:\NEB-181.txt

																	•	
	200	ttg	gcc	gaa	tat	gaa	ggg	aaa	atc	gat	ctg	atc	tac	gcc	gat	ccc	cct	192
		Leu	Ala	Glu	Tyr	Glu	Gly	Lys	Ile	Asp	Leu	Ile	Tyr	Ala	Asp	Pro	Pro	
	202		50					55					60					
				_	-	-		tat			_						-	240
			Phe	Thr	Asp	Arg		Tyr	Ala	Ala	Arg		GLY	His	GLY	Glu	_	
	206	. 65					70					75					80	000
								tgg										288
		ser	Arg	Arg	Pro		Tnr	Trp	GIN	Leu		GIU	GTĀ	туг	Thr	_	GIU	
	210	+ ~ ~	224	an+	++-	85	~~~	+	a+ ~	~~~	90	a++	+-+	000	~~~	95	~+ ·	336
								tac Tyr										330
	214	115	цуз	rsb	100	nsp	GIU	TYL	neu,	105	FIIC	Leu	TYL	FIO	110	neu	Val	
		cta	atσ	t.a.t.		cta	cta	gca	cca		αда	acα	ctc	tac		cac	cta	384
			-			-	_	Ala				_			_		-	304
	218			115	5				120		- 1			125				
		qac	tqq	cac	qcc	aat	qcc	tac	qta	cqt	qta	ctq	ctt	qat	gag	atc	ttc	432
								Tyr										
	222	-	130					135					140	-				
	224	ggg	cga	cag	cgg	ttt	ctc	aac	gag	atc	gtc	tgg	atc	tat	cac	ggc	ccc	480
	225	Gly	Arg	Gln	Arg	Phe	Leu	Asn	Glu	Ile	Val	\mathtt{Trp}	Ile	Tyr	His	Gly	Pro	
	226	145					150		1			155					160	
								ttc										528
		Ser	Ala	Ile	Arg		Ala	Phe	Lys	Arg		His	Asp	Thr	Ile		Val	
	230					165					170					175		
								tat										576
,		Tyr	Val	rys	_	GIU	Asn	Tyr	Thr		Asn	Ala	Asp	Ата		Arg	GIn	
	234	aa+	+	an+	180		222	+		185	++-		+	+	190			624
					_	_		cat His	_			-			_	_	_	624
	238	110	ıyı	195	110	SCI	Auu	штэ	200	1111	гие	AIG	Ser	205	FIO	пуз	AIG	
		aac	ttt		aaσ	at.a	cca	gat		саσ	cac	aac	aaa		aga	αаа	gac	672
					_		_	Asp	_	_	_					-	-	0,2
	242	_	210	- 4	•			215			5	4	220					
	244	tgg	tgg	tat	ttt	ccg	gtc	gtg	gcc	cgt	çta	cac	cga	gaa	cgg	agc	ggc	720
								Val					_	_		_		
	246	225					230					235					240	
			-			_		caa	_	_	_				-	-	_	768
		Tyr	Pro	Thr	Gln	_	Pro	Gln	Ala	Leu		Glu	Arg	Ile	Leu	Leu	Ala	
	251					245					250					255		
								ctg										816
		Ser	Ser	Asn		Gly	Asp	Leu	Val		Asp	Phe	Phe	Cys	_	Ser	Gly	
	255				260					265					270			064
								gcc										864
	259	THE	THE	275	val	vaı	Ата	Ala	280	Leu	GIY	Arg	Arg	285	Leu	val	ASN	
		rat	aca		taa	cac	acc	gtt		ata	202	000	202		++~	ot a	oac	912
		_	_	_		_	-	Val				-		-	_		_	714
	263	nap	290	261	11P	ary	AIG	295	1112	VUL	1111	AT 9	300	AT 9	шeu	шeu	nra	
		gag		ata	aσt	ttc	act	ttt	σаа	cac	сал	gaa		t.t.t	act	cta	cct	960
		2-2	J J 🛰	,					5 ~ ~		-49	2 ~ ~						200

Input Set : A:\NEB-181.txt

```
266 Glu Gly Val Ser Phe Thr Phe Glu Arg Gln Glu Thr Phe Thr Leu Pro
                        310
                                            315
269 atc cag cca ctt cca cca gat tgg ttg atc atc gcc gag gag cag att
                                                                      1008
270 Ile Gln Pro Leu Pro Pro Asp Trp Leu Ile Ile Ala Glu Glu Gln Ile
                   325
                                        330
273 cgc ctc caa gca ccc ttt ctc gta gat ttt tgg gaa gtg gac gat caa
                                                                      1056
274 Arg Leu Gln Ala Pro Phe Leu Val Asp Phe Trp Glu Val Asp Asp Gln
                                    345
277 tgg gat ggc aaa atc ttc cgc agc cgt cat caa ggc tta cgc tcc cgc
                                                                      1104
278 Trp Asp Gly Lys Ile Phe Arg Ser Arg His Gln Gly Leu Arg Ser Arg
                                360
281 ctt cag gag cag gcg ccg ctc tct cta cca ttg acc ggg aat gga ctg
                                                                      1152
282 Leu Gln Glu Gln Ala Pro Leu Ser Leu Pro Leu Thr Gly Asn Gly Leu
283
       370
                            375
285 ttg tgt gta cgg gta gtg agc cgt gaa ggg gaa tac tat gag ttc aca
286 Leu Cys Val Arg Val Val Ser Arg Glu Gly Glu Tyr Tyr Glu Phe Thr
287 385
                        390
                                            395
289 ggt cga gcc gat agc cct cac ccc gta tcg ttt tga
                                                                      1236
290 Gly Arg Ala Asp Ser Pro His Pro Val Ser Phe
                   405
                            ) Sel item 6 on Error Summary Sheet
294 <210> SEQ ID NO: 4
295 <211> LENGTH: 411
296 <212> TYPE: PRT /
297 <213> ORGANISM: Unknown
299 <220> FEATURE:
300 <223> OTHER INFORMATION: At position 198, Xaa = any amino acid
302 <400> SEQUENCE: 4
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306 Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro
307
                                     25
309 Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu
            35
                                 40
312 Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro
                             55
315 Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp
318 Ser Arg Arg Pro Gln Thr Trp Gln Leu Ala Glu Gly Tyr Thr Asp Glu
321 Trp Lys Asp Leu Asp Glu Tyr Leu Asp Phe Leu Tyr Pro Arg Leu Val
               100
                                    105
324 Leu Met Tyr Arg Leu Leu Ala Pro His Gly Thr Leu Tyr Leu His Leu
                                120
327 Asp Trp His Ala Asn Ala Tyr Val Arg Val Leu Leu Asp Glu Ile Phe
                            135
330 Gly Arg Gln Arg Phe Leu Asn Glu Ile Val Trp Ile Tyr His Gly Pro
                        150
                                            155
333 Ser Ala Ile Arg Arg Ala Phe Lys Arg Lys His Asp Thr Ile Leu Val
334
                    165
                                        170
```

RAW SEQUENCE LISTING ERROR SUMMARY PATENT APPLICATION: US/09/689,343A

DATE: 04/16/2002 TIME: 11:52:54

Input Set : A:\NEB-181.txt

Output Set: N:\CRF3\04162002\1689343A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 594
Seq#:3; Xaa Pos. 198
Seq#:4; Xaa Pos. 198

Use of <220> Feature(NEW RULES):

another ever

Sequence(s)_are missing the <220> Feature and associated headings.
Use of <220> to <223> is MANDATORY if <213> ORGANISM is "Artificial Sequence" or "Unknown". Please explain source of genetic material in <220> to <223> section (See "Federal Register," 6/01/98, Vol. 63, No. 104,pp.29631-32) (Sec.1.823 of new Rules)

Seq#:6